MEMORANDUM OF AGREEMENT

This Memorandum of Agreement (hereinafter referred to as the "Agreement") is made and entered into on this 27th January 2025 by and between:

Kitovu Technology Company of Kitovu Business Hub, Sawmill Area, Iseyin-Saki Expressway, Iseyin, Oyo State
(hereinafter referred to as "Kitovu"),

and

Asif Nawaz of Mehar Apartment, H-13, Islamabad, Pakistan
(hereinafter referred to as the "Developer").

WHEREAS

1. Kitovu is developing a GIS-Based Farmer Data Collection and Visualization Platform, known as **TrakOS**, to enhance data collection, mapping, and visualization for farmers and agricultural stakeholders.

2. The Developer possesses the technical expertise and resources to build software applications, including GIS-based platforms, and is willing to collaborate on the development of TrakOS.

NOW, THEREFORE, in consideration of the mutual promises and covenants set forth herein, the parties agree as follows:

1. SCOPE OF WORK

The Developer agrees to build TrakOS according to the provided Product Requirements Document (PRD) and the following specifications:

Technology Stack:

- **Frontend:** React.js
- **Backend:** Node.js
- **Database:** PostgreSQL
- **Mapping Library:** Leaflet

Phases and Deliverables:

- **Phase 1 (Week 1):** Development of a Progressive Web App (PWA) for data collection and integration with a PostgreSQL database.

- **Phase 2 (Weeks 2–3):** Development of the visualization platform and APIs for GIS-based data visualization.
- **Phase 3 (Weeks 4–5):** Integration of YieldMax API into the platform, and visualization of results via direct display and APIs.

2. TIMELINE

The total development duration shall be **5 weeks** from the effective date of this Agreement, broken into the phases specified above.

3. PAYMENT TERMS

Kitovu agrees to pay the Developer a total fee of **$2,000**, disbursed as follows:

- **Tranche 1:** $667 upon successful completion and delivery of Phase 1.
- **Tranche 2:** $667 upon successful completion and delivery of Phase 2.
- **Tranche 3:** $666 upon successful completion and delivery of Phase 3.

Payments shall be made within 72 hours of acceptance of deliverables for each phase and will be made to Developers specified Wise Account.

4. OWNERSHIP OF INTELLECTUAL PROPERTY

All deliverables, including but not limited to source code, designs, and documentation, created by the Developer for TrakOS, shall remain the sole property of Kitovu.

5. CONFIDENTIALITY

The Developer agrees to maintain strict confidentiality of all proprietary information and data provided by Kitovu for the purpose of developing TrakOS.

6. WARRANTY

The Developer warrants that:

1. The deliverables shall function as intended based on the PRD.
2. The software shall be free from defects and vulnerabilities for a period of 6 months following the final delivery.

7. DISPUTE RESOLUTION

Any disputes arising under this Agreement shall be resolved through mutual discussion. If unresolved, disputes may be submitted to arbitration in accordance with the laws of Nigeria.

8. ENTIRE AGREEMENT

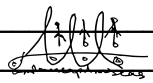
This Agreement constitutes the entire understanding between the parties concerning the subject matter and supersedes all prior agreements.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

For Kitovu Technology Company

Name: Nwachinemere Emeka

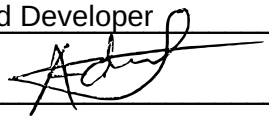
Title: CEO

Signature: 

Date: 01/27/2025

Name: Adetayo Adewobi

Title: Lead Developer

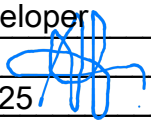
Signature: 

Date: 01/27/2025

For [Third Party Developer]

Name: Asif Nawaz

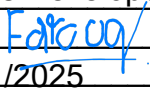
Title: GIS Developer

Signature: 

Date: 27/01/2025

Name: Farooq Ahmad

Title: Business Developer

Signature: 

Date: 27/01/2025

Product Requirements Document (PRD)

Product Name:
GIS-Based Farmer Data Collection and Visualization Platform

Objective:
Develop a Progressive Web App (PWA) to enable efficient collection, mapping, and visualization of farmer, farm, and resource data. This platform will provide actionable insights for stakeholders, ensuring targeted interventions, resource planning, and better productivity monitoring.

Key Features and Requirements

1. **Farmer Data Management**
The app must allow:
- Registration of farmers with detailed personal, location, and KYC information.
- Editing and updating farmer information.
- Retrieval of the list of farmers with filtering options (e.g., by region, cooperative).
- Viewing details of an individual farmer, including personal data, farm data, and cooperative membership.

Data to Collect:
1. Personal Information:
   - Full Name (First, Middle, Last).
   - Gender (Male/Female).
   - Date of Birth.
   - Phone Numbers (Primary and Alternate).

2. Geographic Information:
   - Residential Address.
   - Community, Local Government Area (LGA), City, and State.

3. Know Your Customer (KYC):
   - Farmer's Photograph.
   - ID Type (National ID, Voter's Card, Driver's License, International Passport).
   - ID Number.
   - Image of the ID Document (uploaded/scanned).

2. **Farm Data Management**
The app must:
- Enable the registration and management of farm data for each farmer.
- Prevent duplicate or fake farms using geofencing for unique GPS locations.

- Allow users to upload farm boundary data and automatically calculate farm size.
- Capture farm ownership details and lease duration where applicable.

Farm Data to Collect:
1. Farm Location:
  - GPS Coordinates.
  - Mapped farm boundary data.

2. Ownership:
  - Owned or Leased.
  - Lease Duration (if leased).

3. Farm Categories:
  - Crop Farming, Livestock Farming, or Both.

4. Crops and Livestock:
  - Type of crops planted and acreage per crop.
  - Type of livestock raised and the number of animals (e.g., poultry, goats, cattle).

3. **Cooperative Management**
The app must:
- Allow farmers to associate themselves with cooperatives.
- Enable the addition of cooperative details such as name and activities.
- Support retrieving and managing cooperative memberships for farmers.

Cooperative Details to Capture:
1. Membership:
  - Yes/No.
  - Cooperative Name.

2. Activities:
  - Group farming, bulk purchasing of inputs, etc.

4. **Visualization and Mapping**
The app must provide:
  - A GIS-based interactive map to visualize:
  - Farmer data by region (e.g., community, LGA, or state).
  - Land use segmentation (arable land, forest reserves, and water bodies).
  - Commodity distribution by state or community.

  - Clear visual overlays for:
  - Farm boundaries with size and crop details.
  - Livestock concentration per area.

5. **Resource Mapping and Insights**
The platform must:
- Display data on water bodies (e.g., dams, rivers) with their locations.
- Provide insights into forest reserves and conservation zones.
- Enable resource data uploads (land use, water bodies, forests) by authorized users.

6. **Commodity Data Management**
The app must:
- Allow uploading of commodity data by state or community.
- Display distribution data for specific commodities.
- Provide insights into trends in crop and livestock distribution.

7. **User and Enumerator Management**
The app must:
- Track the real-time location of enumerators during data collection for accountability and monitoring.
- Allow authorized users to manage enumerator access and permissions.
- Provide enumerators with tools for offline data collection, which sync automatically when online.

API Requirements

The platform must include APIs to support the following operations:

Farmer Data APIs
- Add new farmers and their details.
- Update farmer information as needed.
- Retrieve the list of farmers with filtering options.
- Fetch the details of a specific farmer by ID.

Farm Data APIs
- Add farm location and boundary data.
- Retrieve calculated farm size.
- Fetch farms associated with a specific farmer.

Cooperative APIs
- Add and manage cooperative memberships for farmers.
- Fetch cooperative details and associated farmers.

Land Use APIs
- Upload and retrieve land use data by region (e.g., state, LGA).
- Manage and display geofenced farm boundaries.

Water Body and Forest Data APIs
- Add and access water body data (e.g., dams, rivers).
- Retrieve forest reserve and conservation zone data.

Commodity APIs
- Upload data on commodities grown in specific regions.
- Fetch commodity distribution details for targeted interventions.

T**echnical Requirements**

Progressive Web App (PWA) Features:
- Offline-first functionality to allow enumerators to capture data without internet connectivity, with automatic sync when online.
- Device-agnostic design (responsive on mobile, tablet, and desktop).
- Secure authentication and role-based access control for different user types (e.g., enumerators, admins).

Geofencing:
- Prevent duplicate or fake farm entries by ensuring GPS coordinates are unique within the platform.

Live Location Tracking:
- Real-time tracking of enumerators for monitoring data collection activities.

Scalability:
- The app and APIs must handle a large volume of farmer data, land data, and concurrent users without performance degradation.

Success Metrics
1. Accurate and complete collection of farmer and farm data.
2. Geofencing effectively prevents duplicate farm entries.
3. Seamless visualization of data on the GIS-powered map.
4. High performance and usability of the PWA across devices and network conditions.